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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/624,313	07/22/2003	Sujatha Ramanujan	86678NAB	7288

7590 05/26/2005

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EXAMINER

PHAM, HAI CHI

ART UNIT PAPER NUMBER

2861

DATE MAILED: 05/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/624,313

Applicant(s)

RAMANUJAN ET AL.

Examiner

Hai C. Pham

Art Unit

2861

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 07 March 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 54-65, 81-89, 91 and 96-102 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) 54-65 and 96-102 is/are allowed.
- 6) ☒ Claim(s) 81-89 and 91 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 04/04/05.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Allowable Subject Matter*

1. The indicated allowability of claim 83 is withdrawn in view of the newly discovered reference to Schoon (U.S. 5,481,398) and the previously cited reference in Ramanujan et al. (U.S. 6,125,547). Rejections based on the newly cited reference(s) follow.

### *Claim Objections*

2. Claim 84 is objected to because of the following informalities:
- “where in the spatial light modulator is moved to at least 2 distinct positions” should read --wherein the spatial light modulator is moved to at least two distinct positions--.

Appropriate correction is required.

### *Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 81-89 and 91 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ramanujan et al. (U.S. 6,215,547) in view of Schoon (U.S. 5,481,398).

With regard to claim 83, Ramanujan et al. discloses a method of printing two-dimensional swaths of area onto a photosensitive media using a reflective liquid crystal spatial light modulator, the method comprising the steps of:

- imaging light from a light source,
- sequentially illuminating an optics assembly,
- passing said light from said optics assembly through a polarization beamsplitter,
- directing said polarized light to said spatial light modulator,
- imaging said light through a second lens assembly (e.g., print lens assembly) to the photosensitive media,
- turning said light emitting diodes off allowing residual image information to decay, turning said light emitting diodes on, and printing an additional two-dimensional swath of image (col. 18, lines 29-52 [claim 31]).

However, Ramanujan et al. fails to teach the modulator being temperature controlled.

Schoon teaches an image forming apparatus in which the spatial light modulator (PLZT 107) is provided with a temperature stabilization system for correcting the variations in response of the modulator due to variations of the temperature, the temperature stabilization system including a temperature sensor (109) and a cooling system (fan 113) actuated based on the detected temperature so as to keep the environmental temperature of the modulator constant.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to provide a temperature stabilization system in the device

of Ramanujan et al. as taught by Schoon. The motivation for doing so would have been to correct the variations in response of the modulator due to variations of the temperature so that high quality and discontinuity-free images can be formed as suggested by Schoon at col. 1, lines 48-59.

Ramanujan et al. further teaches:

- said light sources comprising at least two distinct wavelengths (the array of light emitting diodes operate at three or more wavelengths) (see claim 31),
- wherein backplane voltage of said modulator is varied as a function of illumination wavelength (col. 10, lines 47-52),
- wherein the spatial light modulator is moved to at least two distinct positions and imaged to create a composite image (see Figs. 12a-d and associated discussions),
- wherein the step of modulating said spatial light modulator comprises the step of varying the drive signal provided to an element of said spatial light modulator (col. 8, lines 30-48),
- wherein the step of directing said exposure beam comprises the step of magnifying said exposure beam (col. 13, lines 1-9),
- wherein the step of directing said exposure beam comprises the step of demagnifying said exposure beam (the print lens being adapted to create images of different print sizes),
- wherein the step of selecting an output format comprises the step of prompting for an operator response (col. 12, lines 32-41),

- wherein the step of modulating said uniformized source beam within a spatial light modulator in accordance with said digital data is further conditioned by said digital data to provide an exposure beam capable of printing a plurality of images at the same time (col. 13, lines 32-55),
- selecting a subset of individual modulator elements on said spatial light modulator proportional to said width dimension (col. 11, lines 13-55).

***Allowable Subject Matter***

5. Claims 54-65 and 96-102 are allowed.

***Response to Arguments***

6. Applicant's arguments with respect to claims 81-89 and 91 have been considered but are moot in view of the new grounds of rejection presented in this Office action.

***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai C. Pham whose telephone number is (571) 272-2260. The examiner can normally be reached on M-F 8:30AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Talbott can be reached on (571) 272-1934. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2861

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



**HAI PHAM**  
**PRIMARY EXAMINER**

May 23, 2005